

PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

REC'D 10 SEP 2004
WIPO

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| Applicant's or agent's file reference 2002P11288WO | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416) | |
| International application No. PCT/EP 02/07860 | International filing date (day/month/year) 15.07.2002 | Priority date (day/month/year) 15.07.2002 |
| International Patent Classification (IPC) or both national classification and IPC H04L12/28 | | |
| Applicant SIEMENS AKTIENGESELLSCHAFT et al. | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.
 - This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:
 - I Basis of the opinion
 - II Priority
 - III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV Lack of unity of invention
 - V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI Certain documents cited
 - VII Certain defects in the international application
 - VIII Certain observations on the international application

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| Date of submission of the demand 11.11.2003 | Date of completion of this report 08.09.2004 |
| Name and mailing address of the International preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 | Authorized Officer Grimaldo, M Telephone No. +49 89 2399-7513 |



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP 02/07860

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

| | |
|-------|----------------------------------|
| 2-8 | as originally filed |
| 1, 1a | filed with telefax on 19.04.2004 |

Claims, Numbers

| | |
|-----|----------------------------------|
| 1-8 | filed with telefax on 19.04.2004 |
|-----|----------------------------------|

Drawings, Sheets

| | |
|-----|---------------------|
| 1/1 | as originally filed |
|-----|---------------------|

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP 02/07860

5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).
(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | |
|-------------------------------|-------------|-----|
| Novelty (N) | Yes: Claims | 1-8 |
| | No: Claims | |
| Inventive step (IS) | Yes: Claims | 1-8 |
| | No: Claims | |
| Industrial applicability (IA) | Yes: Claims | 1-8 |
| | No: Claims | |

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP 02/07860

Cited documents

The following documents (D) are cited in the search report; the numbering will be adhered to throughout the procedure:

- D1: WO 01/06732 A (BRITISH TELECOMM ;NEILL ALAN WILLIAM O (GB); CORSON MATHEW SCOTT () 25 January 2001 (2001-01-25)
- D2: "MPLS-AN INTRODUCTION TO MULTIPROTOCOL LABEL SWITCHING" WHITE PAPER NORTEL NETWORKS, XX, XX, April 2001 (2001-04), pages 1-12, XP002950989

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement

1. Mobile IP and MPLS (Multi Protocol label switching) are emerging technologies. In order to offer mobile IP services in a network, which has been engineered for MPLS, network operators are dealing with the problem of convergence between the two technologies.

The simplest approach is to deploy both technologies independently of each other: MPLS tunnels for engineering purposes and IP tunnels for mobile IP supporting.

An alternative approach is a loose coupling between MPLS and mobile IP: home agent and label edge router would reside on the same network node without direct interacting between these two components.

Independent method claim 1 provides an alternative method with a tight coupling between an existing static MPLS infrastructure and IP mobility services for transferring IP packets.

The method comprises label switched paths configured in advance based on mechanisms, like traffic engineering, and a modified home agent including label edge router capability. Packets are forwarded to a mobile host in a visited network exclusively by means of label switched paths, which interconnect mobility home and foreign agents. Thus for new mobility bindings in the home agent no creation or modification of label switched paths is required.

Document D2, considered the closest prior art, discloses a multiprotocol label

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP 02/07860

switching wherein the MPLS nodes an agent sends a data packet to a further node.

However, document D2 does not use preconfigured paths, but forward on a hop by hop basis and does not examine whether a preconfigured path from the home agent to the foreign agent exists but it calculates for all possible not pre-configured paths which one is the shortest, i.e. it predetermines paths but does not use preconfigured route.

In view of these considerations, it seems that the subject-matter of claim 1 is novel and inventive (Article 33(1)-(3) PCT).

2. Claims 2-7 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step (Article 33(1)-(3) PCT).
3. Independent claim 8 (home agent) although phrased as an apparatus is nevertheless a repetition of the subject-matter of method claim 1 and hence also meet the requirements of novelty and inventive step (Article 33(1)-(3) PCT).

Certain observations on the international application

4. A claim's subject-matter should be defined in terms of positive features indicating that certain technical elements are present. As a consequence the expression used in claim 6 "functional entities ... are co-located but not correlated" should be avoided (Article 84 EPC).